(No Model.)

J. J. ENDRES.

GRIP FOR CABLE CARS.

No. 347,783. Patented Aug. 24, 1886.

Fig. 1.

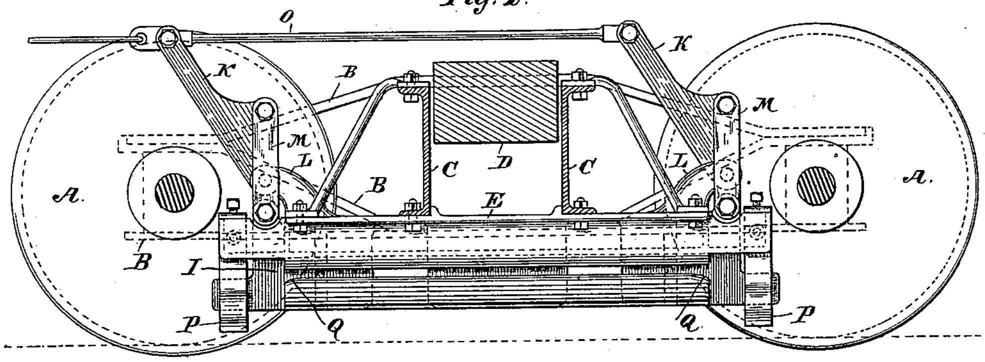


Fig. 2.

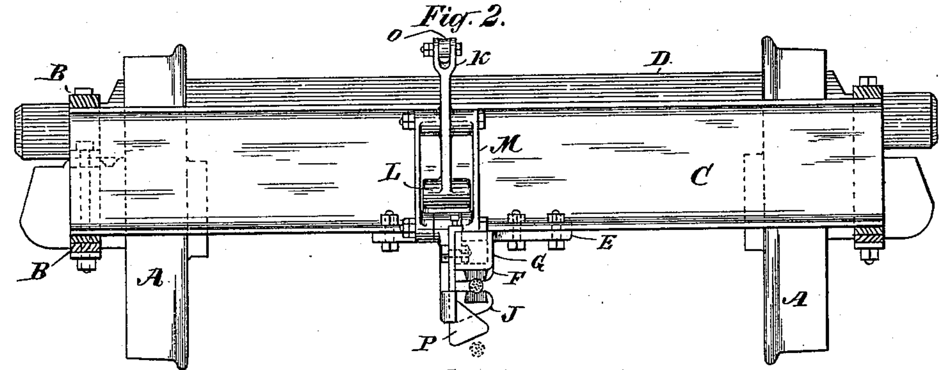


Fig. 3.

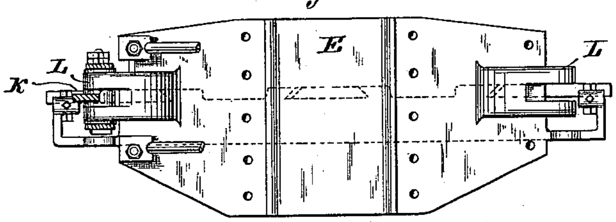


Fig. 4.

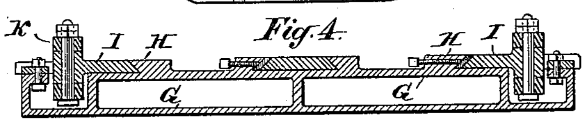
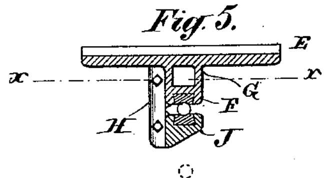


Fig. 5.



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UNITED STATES PATENT OFFICE.

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GRIP FOR CABLE-CARS.

SPECIFICATION forming part of Letters Patent No. 347,783, dated August 24, 1886.

Application filed February 11, 1886. Serial No. 191,641. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. ENDRES, of the city, county, and State of New York, have invented certain new and useful Improvements in Grips for Cable-Road Cars, of which the following is a full, clear, and exact description, and will enable those versed in the art to which they belong to make and use the same, reference being had to the accompanying drawings.

The object of the present invention is to produce a cable-car-gripping mechanism of an improved, simple, and compact construction, and one that shall be more effective in its action, while less wearing to the cable, than is the case with the common forms of gripping mechanism.

The particular features that are regarded as new will be first described, and then pointed out in the claims.

In the drawings accompanying this specification, Figure 1 is a central longitudinal sectional view of a cable-car truck provided with a gripping mechanism embodying my improvement, the section being taken on one side of the gripping mechanism. Fig. 2 is a cross-section of the same. Fig. 3 is a top view of the plate used for attaching the grip to the car-truck. Fig. 4 is a horizontal section of the parts supporting the grip on *x x* of Fig. 5, and Fig. 5 is a cross-section of the same.

In these views, A represents the wheels of the truck; B, side bars connecting the axle-boxes of the wheels on each side of the truck and supporting the cross-bars C, between which cross-bars is the bolster D, to which the body of the car is attached; and E is a plate bolted to the lower flange of the cross-bars C, and supports the gripping mechanism.

The upper jaw of this grip is indicated by the letter F, and it is rigidly attached to the under side of the plate E by the box-like supports or walls G, which supports are provided with ways H, in which slide the guides I, that carry the lower jaw, J, of the grip.

K are levers pivoted to the fulcrum-arms L on the plate E, which levers are attached by links M to the end guides, I, of the lower movable jaw, J, of the grip, and are simultaneously operated by means of the rod O, attached to their upper ends and connected with any suitable operating device worked by the person in charge of the car.

P is a throwing-off lug, which is rigidly attached to the plate E, and is so arranged that when the under jaw of the grip is lowered the cable will fall upon the flat upper beveled surface of this lug and slide off, and thus become entirely disengaged from the gripping mechanism.

The lower jaw has its ends curved downward, as shown at Q, so that the groove in the jaw in which the cable runs will conform to the bend that the cable naturally takes when it is lifted from its pulleys.

Both jaws of the grip are provided with separate facings or friction-block for the cable to run on, as usual, and the lower jaw and throwing-off lug are provided with suitable means of adjustment, so that they may be properly arranged with reference to each other and to the other parts. By these means I am enabled to use long gripping-jaws, which is an important consideration, as they can be made to take better and surer hold upon the cable, and at the same time with less wear of the cable, because it will not be bent or indented to the extent that a grip of less gripping-surface would necessarily bend or indent it. The curved ends of the lower jaw assist materially in preventing the wear upon the cable, for by their use the cable, when lifted, does not rest upon any corners, and is not forced into a suddenly bent or angular form; but, on the contrary, the cable lies in a gradually-curved line without kink or angle, and particularly with that portion of it that is between the gripping-jaws in the shape it most naturally assumes when lifted from its carrying-pulleys; and, furthermore, with such curved ends the cable has an easier entrance into the grip, and so runs through the grip—as when the car is stopped but the grip not disengaged from the cable—freely, and without the strain and wear incident to common forms of grip-jaws when used under similar conditions.

With this form of gripping mechanism I am enabled to dispense with all carrying-rolls on the grip, which rolls, to be of real use, must be unduly large, and when small, as they necessarily and commonly are, they only bind and stick on their pivots, because they cannot

practically assume the speed of the moving cable, and they act to wear the cable and bend it shortly, so as to cause the ends of the wire composing the cable to project and interfere with the operation of the grip.

It is plain that the shorter that portion of the cable is that bears upon the gripping mechanism and the less the cable is deflected from its normal position the shorter will be the bend in the cable, and hence the less will be the weight and vertical strain upon the gripping mechanism. By providing jaws, as shown, there is no necessity for carrying pulleys on the gripping mechanism, and the bend in the cable is correspondingly shortened, and by arranging such gripping mechanism as low as is possible and have it clear the cable-carrying pulleys, the portion of the cable held up by the grip is practically of the shortest length, and hence the weight thrown upon the gripping mechanism and the strain it must thereby sustain are reduced to a minimum.

This grip also is particularly compact, being available in small places, and so does not require special changes in the construction of the cars or trucks.

It is of course understood that this grip is what is known as a "side grip"—that is, that it takes the cable sidewise. To this end any suitable mechanism may be used that will answer to lift the cable and place it upon the lower jaw; but though I have shown these improvements as applied to a side grip, I do not confine myself to such form of grip alone, for manifestly the improvements are applicable to other forms of grips.

I am aware of Patent No. 312,711, of February 24, 1885, and do not here claim anything there shown. It is to be noted that the lower jaw of the grip there shown has a lateral movement as well as a vertical in closing and opening, while in the present case the movable jaw has a direct vertical movement.

I am also aware that conical rollers have been employed to throw off the cable, and these are not my invention. I have found that lugs such as are herein described having flat surfaces are more desirable for this purpose, being more certain in action and less liable to indent or kink the cable when it falls upon them.

What I claim as new is—

1. In combination, in a cable-car grip, a fixed jaw and a movable jaw having direct vertical movement, and provided at each end with separate mechanisms for lowering and raising the ends of the jaw, as and for the purpose set forth.

2. In combination, in a cable-car grip, a fixed jaw, a movable jaw having direct vertical movement, and means for operating the movable jaw, consisting of a lever or like device arranged at each end of the jaw, and a connection between said levers for causing both ends of the movable jaw to be simultaneously operated, as and for the purpose set forth.

3. In combination, in a cable-car grip, a fixed and a movable jaw, and means for operating said movable jaw, consisting of the levers K, the links M, attached to the ends of the jaw and the said levers, and the rod O, connecting the levers, as and for the purpose set forth.

4. In combination, the fixed jaw F, provided with ways H, the movable jaw J, provided with the guides I, and levers of like means attached to the ends of the movable jaw and arranged to operate simultaneously, as and for the purpose set forth.

5. In combination, in a cable-car grip, a fixed jaw and a movable jaw having beveled or curved ends corresponding to the bend given to the cable when in the jaws, and mechanism acting simultaneously upon each end of the movable jaw to open or close it, as and for the purpose set forth.

6. In combination, the fixed jaw F, having ways H, the movable jaw J, having guides I, and the throwing-off lugs P, as and for the purpose set forth.

7. In combination, in a cable-car grip, a fixed and a movable jaw, levers arranged at and simultaneously operating each end of the movable jaw, and lugs located at each end of the movable jaw and arranged to throw the cable off said jaw when it is lowered to said lugs, as and for the purpose set forth.

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